

LIST

LONG ISLAND SINCLAIR TIMEX GROUP
INCORPORATING * NYTSE OF NEW YORK CITY

ISSUE: **November** 1990

* NEW YORK TIMEX SINCLAIR ENTHUSIASTS: NEXT MEETING DECEMBER 9



DISK DRIVES SUPPORTED:
1 OLIGER
2 LARKEN
3 AERCO

LIST MEMBERSHIP IS \$15.00. LIBRARY TAPES ARE AVAILABLE, WRITE THE ADDRESS PRINTED BELOW.

programs for your Timex



L.I.S.T.
5 PERI LANE
VALLEY STREAM, NY
11581



TO: Don Lambert JAN/91
1301 Killinger PL
Auburn, IN
46706



UPPER RIGHT
CORNER OF
YOUR LABEL
IS DATE OF
LAST ISSUE.

FIRST CLASS MAIL
DATED MEETING NOTICE

1

DECEMBER 9

LIST OFFICERS

PRES. HARVEY RAIT
TRES. ROBERT MALLOY
COR. SEC. JOHN RAZMINDO
EDITOR. FRED STERN
LIBR. TOM SKAPINSKI

PLEASE SEND INQUIRIES TO:

LIST

MR. HARVEY RAIT
5 PERI LANE
VALLEY STREAM, N.Y. 11581

PLEASE SEND SUBMISSIONS TO:

LISTING

MR. FREDERIC STERN
314 ROBERTS ST.
HOLBROOK, N.Y. 11741

NYTSE

NYTSE MEETS THE MONDAY AFTER
THE LIST MEETING AT:
MISS KIMS RESTAURANT
PARK AVENUE SOUTH
BETWEEN 21 ST. AND 22 ST.
MEETINGS START 7:30 PM.

COMING EVENTS:

DEC. 9, 1990 LIST MEETING
DEC. 10, 1990 NYTSE MEETING

MEETING MINUTES
NOV. 4, 1990

HARVEY CALLED THE MEETING TO
ORDER AT 2:30PM.

LIST SOLD 2 MORE COPIES OF
TECHNICAL TIDBITS. FRED TO SHIP.

JOHN RAZMINDO RECEIVED AND
ANSWERED 2 LETTERS.

FRED STERN REPORTED THAT A
LETTER WAS SENT TO THE SEATTLE
AREA TIMEX SINCLAIR USERS GROUP
IN REBUTTLE TO AN ARTICLE WHICH
THEY PUBLISHED.
THE ARTICLE PUBLISHED IN THE
SEPT. 1990 ISSUE OF SWYM
OFFENDED MEMBERS OF LIST AND
WARRENTED FRED'S ACTIONS IN
SENDING THE LETTER.

WITH GREAT SADNESS WE LEARNED
OF THE DEATH IN AUGUST OF
DONALD LAMEN. DON WAS KNOWN BY
MANY OF US IN THE TIMEX
COMMUNITY. HIS ARTICLES AND
LETTERS APPEARED IN MANY NEWS-
LETTERS, INCLUDING LISTING. HE
WILL BE MISSED BY US ALL.

BOB GILDER BROUGHT IN A SERIAL
TO PARALLEL ADAPTER, AND VIDEO
INVERTER WITH POSITIVE SYNC
ADAPTER, BOTH FOR THE QL. BOB
BUILT BOTH THE ADAPTERS FROM
SCRATCH. THE SERIAL TO PARALLEL
ADAPTER ALLOWS A PARALLEL
PRINTER TO BE USED WITH THE QL.
THE VIDEO ADAPTER ALLOWS CERTAIN
TYPES OF MONITORS TO BE USED.
BOB WILL WRITE AN ARTICLE ABOUT
THESE ADAPTERS WHICH WILL APPEAR
IN A FUTURE ISSUE OF LISTING.

BOB ALSO INFORMED US ABOUT THE
NEW ENGLAND QL USERS GROUP.
MEMBERSHIP IS \$10.00 PER YEAR,
AND WELL WORTH THE MONEY WHEN
COMPARED TO THE PROGRAMS AND
INFORMATION THAT THE GROUP
OFFERS.

ANY READER WHO HAS NOT RECEIVED
THE OCT. ISSUE OF LISTING,
CONTACT FRED AT THE ABOVE
ADDRESS. AN ISSUE WAS RETURNED
TO US THAT WAS DAMAGED BY THE
POSTAL SERVICE.

LIST EQUIPMNT SALE

LIST HAS THE FOLLOWING EQUIPMENT
FOR SALE. IT IS SELLING FAST SO
YOU BETTER HURRY!

TS2068-EXCELLENT VALUE	\$50.00
TS2040-PRINTER	\$15.00
TAPE RECORDER-PANASONIC	\$15.00
QL MOD. ADAPTER	\$20.00
TASMAN PRINTER INTERFACE	\$25.00

THE ABOVE EQUIPMENT CAN BE SEEN
AND PURCHASED AT THE NEXT LIST
MEETING.

CLASSIFIEDS

THIS CLASSIFIED SECTION IS
AVAILABLE TO ALL LIST MEMBERS
FREE OF CHARGE.
THE ONLY RESTRICTION IS THAT
IT IS TO BE USED ONLY FOR THE
SEEKING, SELLING OR SWAPPING
OF SINCLAIR, TIMEX OR MICROACE
COMPUTER EQUIPMENT, PERIPHERALS
AND SOFTWARE.
LISTING, LIST, AND ITS OFFICERS
DO NOT ENDORSE, WARRANTY, OR
GUARANTEE ANY OF THE ITEMS
LISTED IN THIS CLASSIFIED
SECTION

I AM LOOKING FOR SOFTWARE TO
DRIVE AN AERCO INTERFACE AND
GORILLA PRINTER WITH A TS1000.
PLEASE CONTACT FRED AT
516-737-0963.

TS1000, TS2068, COMPUTERS AND
PERIPHERALS FOR SALE.
PAUL DONNELLY, 516-261-6934.

IRISH PCC-10 BLANK TAPES AT AN
INCREDIBLY LOW PRICE. CALL TOM
516-732-1825.

A FINAL WORD

MY NAME IS FRED STERN AND I AM
THE EDITOR OF THIS EDITION OF
LISTING.

THIS IS OUR SPECIAL PROGRAM
ISSUE, WITH PROGRAMS FOR ALL THE
TIMEX-SINCLAIR MACHINES.

A SPECIAL THANKS TO BOB GILDER
FOR HIS QL PROGRAM, TO WARREN
FRICKE FOR HIS INVOLUNTARY
CONTRIBUTION, TO TOM SKAPINSKI
FOR HIS PUBLISHING WIZZARDRY,
AND THE MANY OTHERS WHO HELPED
MAKE THIS ISSUE POSSIBLE.

ON BEHALF OF THE OFFICERS OF
LIST, I WISH TO ALL OUR MEMBERS
AND READERS A HAPPY THANKSGIVING
SEE YOU ALL AT THE DECEMBER
MEETING.

TS2068

UTILITY TO PRINT OUT THE CATALOG OF A LARKEN DISK

5 REM This program is based on work by a another Programmer. This version is by Thomas Skapinski 7 Atkinson LN, Coram, NY 11727-3004 U.S.A. 10/07/90

10 CLS : RANDOMIZE USR 100: OPEN #4, "DD": REM opens Larken Disk Drive.

15 OUT 127,15: REM SPACE

20 RANDOMIZE USR 100: OPEN #2, "lp": REM send information to printer instead of screen

25 OUT 127,27: OUT 127,51: OUT 127,15: OUT 127,15: OUT 127,27: OUT 127,83: OUT 127,48:

REM SMALLPRINT

30 INPUT "DRIVE? (0-3) ";DRV: RANDOMIZE USR 100: GO TO DRV

35 INPUT AT 1,0: ("DRIVE # ";DRV;" SELECTED" ""DISK Nm/# "); LINE A\$: INPUT "DATE (mm/dd/yy) ?" ; LINE b\$

40 RANDOMIZE USR 100: CAT ""

43 REM L.I.S.T., Long Island Sinclair Timex Group

50 PRINT ""DISK ";a\$,"DATE ";b\$""

55 RANDOMIZE USR 100: CLOSE #2

60 INPUT "1= MORE 0=MENU ";m

65 IF m THEN CLS : GO TO 15

70 RANDOMIZE USR 100: NEW : REM

starts a program called Autostart in my case a Loader program

75 STOP

100 RANDOMIZE USR 100: SAVE "CATCP2.BL" LINE 1:

REM disk save self start at LINE 1

Disk Name :

catcopy.B1	001 quik1b.B1	001 reader.B1	002
header.B1	001 diskme.Cx	001 AUTOSTART	002
FORMAT.B5	010 Hcode.C1	001 format.B1	001
FORMAT.BL	001 Header.BA	001 Header.CD	001
FORMAT+.BL	001 CATCP2.BL	001 LIST.BL	001

LARKEN LKDOS 1986
Track/Side 040/002
Total Files 015
Free Blocks 053

DISK UTILITY DATE 10/07/90

DISK UTILITY DATE 10/07/90

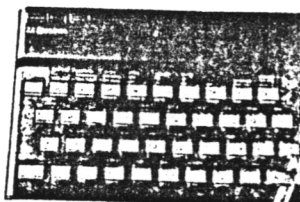


ITALIC WAS ON. YOU DON'T HAVE TO USE IT.
YOU MAY USE STANDARD PRINTER FONT.

NOTE: As you can see this program will produce a miniature list of the catalog... This mini list can be taped on to the Disk or to the jacket of included with the disk in it's sleeve.

I hope you like the program. You may wish to use this printer set up for other purposes of your own creation. If you come up with anything you would like to share with others please do so. And send me a copy too.

Keep computing!



QL

BY Bob Gilder

The following programs are for the Sinclair QL computer and should be run in Mode 4 (F1). These programs are debugged and operate as they were intended to run. I am sure that the Unit_pricer and Metric_con programs can be streamlined if desired. These and many other programs I have either written or have copied from assorted publications have been compiled using QLiberator so that they load (using EXEC or EXEC)W) operate much faster and can be multitasked using CTRL/C. Shortly several disks containing many programs will be available to LIST members. A notice will appear in LISTING when they are available.

```
98 REMark Program name: Colorbar
99 REMark Bob Gilder January 1990
1000 REMark Colorbar is initiated by typing 'cb'.
1010 REMark The purpose of the colorbar is to verify that the G2
controls within your color monitor are adjusted properly.
1020 REMark There is an exception to this if your monitor is an
RGB CGA monitor - where yellow is expected, brown is the
result and the white will appear dark.
1030 REMark The circle should appear round; if not; adjust the
Horizontal and/or vertical size controls on your monitor until
the circle is perfect.
1040 REMark The small inner circle should be dead center on your
monitor screen - if not; adjust the horizontal and/or vertical
position controls.
1050 REMark One final note: the border is a necessary for proper
positioning of the eight colorbars due to the QL's 86 column
screen. Remove the border and observe what happens.
1100 DEFine PROCedure cb
1104 WINDOW #1,448,200,32,16
1108 WINDOW #2,448,200,32,16
1112 WINDOW #0,448,40,32,216
1116 PAPER #1,0: INK #1,5: CLS#1
1120 PAPER #2,0: INK #2,5: CLS#1
1124 PAPER 0: INK 7: CLS
1128 CSIZE #1,1,0
1132 CSIZE #2,1,0
1136 CSIZE #0,1,0
1140 MODE 8:BORDER 15,250:CLS
1144 PAPER 7: CLS
1148 FOR n=1 TO 17
1152 FOR p=0 TO 7
1156 PAPER p: PRINT " ";
1160 NEXT p
1164 NEXT n
1168 INK 0:CIRCLE 71,50,50
1172 INK 0:CIRCLE 71.5,50,.2
1176 END DEFine cb
```



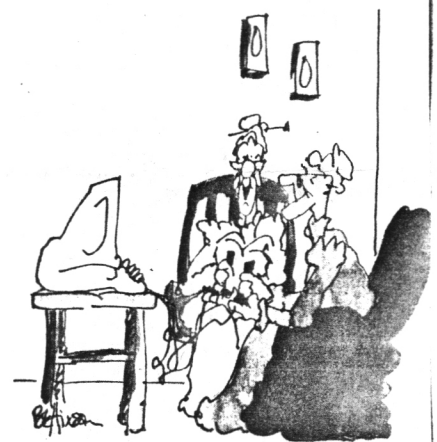
```
1 REMark Program name: Unit_Pricer
2 REMark Have you ever wondered which is the better buy
2 for 59 cents or 3 for 80 cents? Here is the answer.
3 DIM u$(1,23)
4 u$(1)="(ounces, liters, etc)"
5 CLS: PRINT "UNIT PRICER"
10 PRINT "This program compares two 'grocery', 'products
for the BEST BUY. This is"
20 PRINT "based on their UNIT price. Units", "must be
consistant for both items,"
30 PRINT "for BEST evaluation. (Ounces, Liters, ", "etc)."\
```


QL *Continued*

@ R. Gilder 01/30/90"

```
35 PRINT"\\"      Press <ENTER> to continue!":PAUSE
40 CLS
50 INPUT"What is the brand name of product 1?      ";a$
60 PRINT"How much does ";a$;" cost? ":INPUT a
70 PRINT"How many units in the package? ":PRINT u$;" ":INPUT b
80 INPUT"What is the brand name of product 2?      ";b$
90 PRINT"How much does ";b$;" cost? ":INPUT c
100 PRINT"How many units in the package? ":PRINT u$;" ":INPUT d
110 e=a/b:f=c/d:e=e*100:f=f*100
115 CLS
120 PRINT a$;"-";e;" cents per unit."
130 PRINT b$;"-";f;" cents per unit."
140 IF e<f THEN GO TO 150
142 IF e=f THEN GO TO 200
145 PRINT b$;" is the better buy."
147 GO TO 250
150 PRINT a$;" is the better buy."
155 GO TO 250
200 PRINT"Both ";a$;" and ";b$;"are equally priced."
250 PRINT"Do require another evaluation? (Y/N)"
260 INPUT;R$
270 IF R$="Y" OR R$="y" THEN GO TO 1
999 STOP
```

```
1 REMark Program name: Metric_con
3 REMark Bob Gilder January 1990
5 GO TO 2000
10 CLS: PRINT"      METRIC TO U.S. CONVERTER"
20 PRINT"\1] Centimeters to inches"
30 PRINT"\2] Meters to yards"
40 PRINT"\3] Cubic centimeters to cubic inches"
50 PRINT"\4] Kilometers to miles"
60 PRINT"\5] Liters to gallons"
70 PRINT"\6] Grams to ounces"
80 PRINT"\7] Kilograms to pounds"
90 PRINT"\8] Inches to centimeters"
100 PRINT"\9] Yards to centimeters"
110 PRINT"\10] Cubic inches to cubic centimeters"
120 PRINT"\11] Miles to kilometers"
130 PRINT"\12] Gallons to liters"
140 PRINT"\13] Ounces to grams"
150 PRINT"\14] Pounds to kilograms"
160 PRINT"\15] Degrees F to degrees C"
170 PRINT"\16] Degrees C to degrees F"
190 CLS #0
500 INPUT"      Enter for your choice: ";ch$
510 :
520 IF ch$=1 THEN PRINT" HOW many ";a$(1); " to ";a$(8);
"? ":INPUT b:GO TO 900
530 IF ch$=2 THEN PRINT" HOW many ";a$(2); " to ";a$(9);
"? ":INPUT b:GO TO 910
540 IF ch$=3 THEN PRINT" HOW many ";a$(3); " to ";a$(10);
"? ":INPUT b:GO TO 920
550 IF ch$=4 THEN PRINT" HOW many ";a$(4); " to ";a$(11);
"? ":INPUT b:GO TO 930
560 IF ch$=5 THEN PRINT" HOW many ";a$(5); " to ";a$(12);
"? ":INPUT b:GO TO 940
570 IF ch$=6 THEN PRINT" HOW many ";a$(6); " to ";a$(13);
"? ":INPUT b:GO TO 950
```

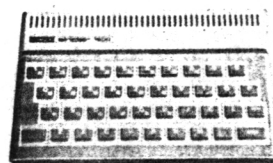


"Beats the heck out of bridge, doesn't it?"

QL Continued

```
580 IF ch$=7 THEN PRINT " HOW many ";a$(7); " to ";a$(14);
"? ":INPUT b:GO TO 960
590 IF ch$=8 THEN PRINT " HOW many ";a$(8); " to ";a$(1);
"? ":INPUT b:GO TO 970
600 IF ch$=9 THEN PRINT " HOW many ";a$(9); " to ";a$(2);
"? ":INPUT b:GO TO 980
610 IF ch$=10 THEN PRINT " HOW many ";a$(10); " to ";a$(3);
"? ":INPUT b:GO TO 990
620 IF ch$=11 THEN PRINT " HOW many ";a$(11); " to ";a$(4);
"? ":INPUT b:GO TO 1000
630 IF ch$=12 THEN PRINT " HOW many ";a$(12); " to ";a$(5);
"? ":INPUT b:GO TO 1010
640 IF ch$=13 THEN PRINT " HOW many ";a$(13); " to ";a$(6);
"? ":INPUT b:GO TO 1020
650 IF ch$=14 THEN PRINT " HOW many ";a$(14); " to ";a$(7);
"? ":INPUT b:GO TO 1030
660 IF ch$=15 THEN PRINT " HOW many ";a$(15); " to ";a$(16);
"? ":INPUT b:GO TO 1040
670 IF ch$=16 THEN PRINT " HOW many ";a$(16); " to ";a$(15);
"? ":INPUT b:GO TO 1050
900 CLS:c=b:c=c*.3937: PRINT b;" "; a$(1);" = ";c;" ";a$(8):
PAUSE:GO TO 2190
910 CLS:c=b:c=c*1.093611: PRINT b;" "; a$(2);" = ";c;" ";a$(9):
PAUSE:GO TO 2190
920 CLS:c=b:c=c*6.102338: PRINT b;" "; a$(3);" = ";c;" ";a$(10):
PAUSE:GO TO 2190
930 CLS:c=b:c=c*.6213699: PRINT b;" "; a$(4);" = ";c;" ";a$(11):
PAUSE:GO TO 2190
940 CLS:c=b:c=c*.264178: PRINT b;" "; a$(5);" = ";c;" ";a$(12):
PAUSE:GO TO 2190
950 CLS:c=b:c=c*3.527396E-2: PRINT b;" "; a$(6);" = ";c;" ";a$(13):PAUSE:GO TO 2190
960 CLS:c=b:c=c*2.204622: PRINT b;" "; a$(7);" = ";c;" ";a$(14):
PAUSE:GO TO 2190
970 CLS:c=b:c=c*2.540005: PRINT b;" "; a$(8);" = ";c;" ";a$(1):
PAUSE:GO TO 2190
980 CLS:c=b:c=c*.9144018: PRINT b;" "; a$(9);" = ";c;" ";a$(2):
PAUSE:GO TO 2190
990 CLS:c=b:c=c*1.638716: PRINT b;" "; a$(10);" = ";c;" ";a$(3):
PAUSE:GO TO 2190
1000 CLS:c=b:c=c*1.609347: PRINT b;" "; a$(11);" = ";c;" ";a$(4):
PAUSE:GO TO 2190
1010 CLS:c=b:c=c*3.785332: PRINT b;" "; a$(12);" = ";c;" ";a$(5):
PAUSE:GO TO 2190
1020 CLS:c=b:c=c*28.34953: PRINT b;" "; a$(13);" = ";c;" ";a$(6):
PAUSE:GO TO 2190
1030 CLS:c=b:c=c*.4535924: PRINT b;" "; a$(14);" = ";c;" ";a$(7):
PAUSE:GO TO 2190
1040 CLS:c=b:c=(c-32)*(5/9): PRINT b;" "; a$(15);" = ";c;" ";a$(16):PAUSE:GO TO 2190
1050 CLS:c=b:c=c*(9/5)+32: PRINT b;" "; a$(16);" = ";c;" ";a$(15):
PAUSE:GO TO 2190
2000 DIM a$(16,16)
2010 a$(1) = "Centimeters"
2020 a$(2) = "Meters"
2030 a$(3) = "Cubic centimeters"
2040 a$(4) = "Kilometers"
2050 a$(5) = "Liters"
2060 a$(6) = "Grams"
2070 a$(7) = "Kilograms"
2080 a$(8) = "Inches"
2090 a$(9) = "Yards"
```

TIMEX *Sinclair*



QL Continued

```
2100 a$(10) = "Cubic inches"
2110 a$(11) = "Miles"
2120 a$(12) = "Gallons"
2130 a$(13) = "Ounces"
2140 a$(14) = "Pounds"
2150 a$(15) = "Degrees F"
2160 a$(16) = "Degrees C"
2170 GO TO 10
2190 INPUT\ "Do you require another conversion? (y/N) ";d$
2200 IF d$ = "y"OR d$ = "Y" THEN GO TO 10
2210 STOP
```

e/e

JOYSTICK

```
2 REM ** JOYSTICK
  DEMONSTRATION
  by
  Warren Fricke
3
5 LET C=10: LET L=10
10 PRINT AT L,C;"*"
15 LET LL=L: LET CC=C
20 LET S= STICK (1,1)
25 LET FB= STICK (2,1)
30 LET C=C+(C<31 AND (S=8 OR S=
  9 OR S=10))-(C>0 AND (S=4 OR S=
  5 OR S=6))
35 LET L=L+(L<21 AND (S=2 OR S=
  6 OR S=10))-(L>0 AND (S=1 OR S=
  5 OR S=9))
40 PRINT AT 10,14;"FIRE" AND
  FB=1
45 PAUSE 5
50 PRINT AT LL,CC;" " AND (LL<
  1 OR CC<C)
55 GO TO 10
```

In this demo routine it is assumed that the joystick is plugged into the port on the player's left. Refer to Lines 20 and 25. RUN the routine. A "*" will appear at Row 10, Column 10. This asterisk can be moved in any one of eight directions by positioning the joystick. The action of the GOTO loop is fairly fast (hence Line 45), and the asterisk may repeat the movement too quickly. If so, a deliberate stepping action can be introduced by a line like...

```
17 IF STICK (1,1) 0 THEN GOTO 17
```

Now we must jog the paddle for each step. We can't use PAUSE 0 to step the action as STICK can not release PAUSE like a key-stroke does.

In this demonstration routine the fire button will print the word FIRE near the center of the screen when pressed. You can erase the word by running the asterisk thru it.

The conventional joystick produces a diagonal motion if the paddle is so positioned, but there is a drawback. The first step, before a diagonal one is taken, must be either vertical or horizontal. This is an inherent flaw in joystick design. To get a diagonal motion, two electrical contacts must be closed inside the joystick, and it is generally not possible to close them simultaneously. Hence, the motion starts off either horizontally or vertically, depending upon which switch closed first.

Warren Fricke

ALPHABETIZER

by Earl Dunnington

This "ALPHABETIZER" routine will work with all Timex computers. Information on converting the program for the 2068 is contained in the REM statements and uneven lines. To SAVE this program, use "GOTO 265".

```
1 REM ZX81,TS1000,1500,2068 "
  ALPHABETIZER"-BY EARL DUNNINGTON
2 REM BASIC COMMANDS PECULIAR
  TO THE ZX81,TS1000 AND 1500 PRO-
  GRAM, HAVE UNEVEN LINE NUMBERS
  FOR EASE IN CONVERTING TO 2068
10 PRINT " INPUT (NUMBER OF EN-
  TRIES)," " THEN PRESS ENTER"
15 FAST
20 INPUT A
30 CLS
40 PRINT " INPUT (MAXIMUM NUMB-
  ER OF LET- TERS IN AN ENTRY)," "
  THEN PRESS ENTER"
50 INPUT B
60 CLS
70 DIM A$(A,B)
80 FOR I=1 TO A
90 PRINT "<TYPE AN ENTRY>"," "
  THEN PRESS ENTER"
100 INPUT A$(I)
110 CLS
120 NEXT I
130 LET X=0
140 LET X=X+1
150 IF X>A THEN STOP
160 IF A$(X)="ZZ" " THEN GOT
  O 140
170 FOR Y=1 TO A
180 IF A$(Y)<A$(X) THEN LET X=Y
190 NEXT Y
200 LPRINT A$(X)
205 REM FOR THE 2068 CHANGE
  THIS LINE TO READ:
205 POKE 23692,100
215 PRINT AT 21-INT (B/32),0;A$(
  X)
220 PAUSE 60
225 FOR N=1 TO INT (B/32)+1
235 SCROLL
245 NEXT N
250 LET A$(X)="ZZ" "
260 GOTO 130
265 SAVE "ALPHABETIZ"
275 GOTO 10
285 REM TO SAVE PROGRAM USE
  ( GOTO 265 )
295 REM FOR THE 2068:
  DELETE LINE 15
  CHANGE LINE 215 TO READ:
  215 PRINT AT 21,0;A$(X)
  DELETE LINE 225
  CHANGE LINE 235 TO READ:
  235 LET S=USR 2361
  DELETE LINE 245
  CHANGE LINE 265 TO READ:
  265 SAVE "ALPHABETIZ" LINE 10
  DELETE LINE 275
```

Editors Note: This is a 1982 Program.
You must update it for 1990 Taxes.

INCOME TAX--8K/16K

It's that time of year again and I hope that TAX will reduce some of the nuisance of tax return preparation, if not the pain in the pocket. It is designed to aid in year-end form preparation and also to allow periodic monitoring of tax liability during the year. You may be able to reduce the amount withheld from your salary or the amount of your quarterly payments if self-employed. Personally, I'd rather have the money during the year than have the IRS hold it for me.

Lines 100-152 provide the main menu of functions with line 170 serving as an error trap for accidental entries. You can quickly see the program's various capabilities. Tax calculation includes all arithmetic and transferring totals to appropriate lines.

The PAUSE subroutine at lines 6000-6030 allow you to view various displays as long as desired before proceeding. The form selection subroutine is at lines 7000-7214. Although this listing includes only Form 1040 and Schedule A, you can add any additional forms using the same principles illustrated. The particular variables allow this flexibility. Z is the offset in line numbers for each form with allows all line numbers and descriptions to be stored in a single sequential array but allows you to enter the line numbers on the IRS form. P is the number of "pages" used to display the given form. Each value of J is the starting line for each display page; each value of K is the ending line. This allows overlap of displays as appropriate.

Lines 1000-1120 provide the data entry function and begin with form selection through GOSUB 7000. You are then prompted for line number and amount. The amount is added to the previous total for this line and the new total displayed. This allows periodic

updating during the year and revisions during year-end form preparation. Make negative corrections by entering negative numbers.

Lines 2000-2248 perform all arithmetic for lines that require it. Schedule A (lines 2200-2248) must be done first so that Form 1040 (lines 2100-2182) will have that information. Lines 2120-2122 require you to refer to the tax tables for the tax on the amount in Form 1040 line 34. Lines 2124-2126 request any additional taxes. The "bottom line" is displayed by lines 2174-2178. In the calculation of Schedule A, the total deduction is displayed by 2242.

Lines 3000-3080 allow you to view all line items on the form selected. GOSUB 7000 illustrates its usefulness here by allowing a short subroutine to serve for all present and future forms. Line numbers, descriptions and amounts are presented. Changing the line number I to I\$ makes for a more attractive display.

Lines 4000-4060 record the program and all variables, including line descriptions and amounts. This also makes the program self-starting upon LOADING and eliminates the danger of erasing everything with a RUN instead of a GOTO.

Lines 5000-5030 erase all line amounts to let you keep the line descriptions intact when starting a new tax year.

Lines 9000-9050 are for initializing the program. The REM statements indicate direct commands that should be entered when the program is being initialized. Line descriptions are typed in by first commanding GOTO 9020. The prompt provides a guide to the maximum length of the description (18 spaces) by printing 16 *s after the line number. The direct command LET J=1 allows later addition of forms and line descriptions. Setting J to the new line number saves previous entries. The number 107 is the total lines in Form 1040



and Schedule A. If you add more forms to the program, you must increase 107 wherever it occurs.

After initializing TAX, enter GOTO 100 to get to the main menu and either begin using it or record it for later use.

Lane Lester, Lynchburg, VA

Enter all data that cannot be computed on Form 1040 or Schedule A. Run CALCULATE TAX routine on Schedule A first; totals are automatically transferred to Form 1040. For lines on Form 1040 with sub-lines a, b, c and d, enter each sub-item to the main line number. The screen shows the latest entry and the total. You can only go forward through the form; enter zeros until the main menu comes up to go back.--KO

(Mar.82 listings are printed on a Sinclair ZX printer. Comments?)

```

100 PRINT AT 3,6;"INCOME TAX RE
TURN"
110 PRINT AT 6,4;"PRESS DESIRED
FUNCTION"
120 PRINT AT 8,6;"1. ENTER DATA
"
130 PRINT AT 9,6;"2. CALCULATE
TAX"
140 PRINT AT 10,6;"3. REVIEW DA
TA"
150 PRINT AT 11,6;"4. RECORD DA
TA"
152 PRINT AT 12,6;"5. ERASE ALL
ENTRIES"
155 PAUSE 40000
160 LET K$=INKEY$
170 IF K$="1" OR K$="5" THEN GO
TO 190
180 GOSUB VAL K$*1000
190 GOTO 100
1999 REM ENTER DATA
1000 GOSUB 7000
1010 PRINT AT 6,8;"LINE NUMBER"
1020 INPUT Y
1030 PRINT AT 6,20;Y
1040 LET X=Y+Z
1050 PRINT AT 8,6;"AMOUNT $"
1060 INPUT A
1070 PRINT AT 8,16;A
1080 LET L(X)=L(X)+A
1090 PRINT AT 10,8;"TOTAL  $";L(
X)
1100 GOSUB 6000
1120 GOTO 100
1999 REM CALCULATE TAX
2000 GOSUB 7000
2020 GOSUB VAL K$*100+2000
2030 RETURN
2099 REM FORM 1040
2100 LET L(21)=0
2102 FOR I=7 TO 20
2104 LET L(21)=L(21)+L(I)

```

```

2106 NEXT I
2108 LET L(30)=0
2110 FOR I=22 TO 29
2112 LET L(30)=L(30)+L(I)
2114 NEXT I
2116 LET L(31)=L(21)-L(30)
2117 LET L(32)=L(107)
2118 LET L(34)=L(31)-L(32)-L(33)
2120 PRINT AT 21,0;"ENTER TAX FO
R $";L(34)
2122 INPUT L(35)
2124 PRINT AT 21,0;"ENTER ADDITI
ONAL TAXES "
2126 INPUT L(36)
2128 LET L(37)=L(35)+L(36)
2130 LET L(46)=0
2132 FOR I=38 TO 45
2134 LET L(46)=L(46)+L(I)
2136 NEXT I
2138 LET L(47)=L(37)-L(46)
2140 LET L(54)=0
2142 FOR I=47 TO 53
2144 LET L(54)=L(54)+L(I)
2146 NEXT I
2148 LET L(62)=0
2150 FOR I=55 TO 61
2152 LET L(62)=L(62)+L(I)
2154 NEXT I
2156 LET X=L(62)-L(54)
2158 IF X<0 THEN GOTO 2166
2160 LET L(63)=X
2162 LET L(64)=L(63)-L(65)
2164 GOTO 2174
2166 LET L(63)=0
2168 LET L(64)=0
2170 LET L(65)=0
2172 LET L(66)=X*-1
2174 FOR I=63 TO 66
2176 PRINT AT I-53,0;I;" ";C$(I)
" $";L(I)
2178 NEXT I
2180 GOSUB 6000
2182 RETURN
2199 REM SCHEDULE A
2200 LET L(70)=L(68)-L(69)
2202 IF L(69)>L(68) THEN LET L(7
0)=0
2204 LET L(73)=L(70)+L(71)+L(72)
2206 LET L(74)=.03*L(31)
2208 LET L(75)=L(73)-L(74)
2210 IF L(74)>L(73) THEN LET L(7
5)=0
2212 LET L(76)=L(67)+L(75)
2214 LET L(82)=L(77)+L(78)+L(79)
+L(80)+L(81)
2216 LET L(86)=L(83)+L(84)+L(85)
2218 LET L(90)=L(87)+L(88)+L(89)
2220 LET L(95)=L(91)+L(92)+L(93)
+L(94)
2222 LET L(98)=L(96)+L(97)
2224 LET L(99)=L(76)
2226 LET L(100)=L(82)
2228 LET L(101)=L(86)
2230 LET L(102)=L(98)
2232 LET L(103)=L(95)
2234 LET L(104)=L(93)
2236 LET L(105)=L(99)+L(100)+L(1
01)+L(102)+L(103)+L(104)
2238 LET L(107)=L(105)-L(106)
2240 IF L(106)>L(105) THEN LET L
(107)=0
2242 PRINT AT 15,0;"41 ";C$(107)
" $";L(107)
2244 GOSUB 6000
2246 RETURN
2999 REM REVIEW DATA
3000 GOSUB 7000
3010 FOR N=1 TO P
3020 FOR I=J(N) TO K(N)
3025 LET I$=STR$ I

```



```

3030 PRINT I$;" ";C$(I+Z);" $";L
(I+Z)
3040 NEXT I
3050 GOSUB 6000
3070 NEXT N
3080 RETURN
3999 REM SECOND DATA
4000 CLS
4010 PRINT AT 8,7;"PREPARE RECORD"
4020 PRINT AT 10,3;"PRESS ANY KEY WHEN READY"
4030 PAUSE 40000
4040 CLS
4050 SAVE "TAN"
4060 GOTO 100
4999 REM ERASE ALL ENTRIES
5000 CLS
5005 FOR I=1 TO 107
5010 LET L(I)=0
5020 NEXT I
5030 PRINT AT 10,7;"ALL ENTRIES ERASED"
5999 REM ERASE
6000 PRINT AT 21,3;"PRESS ANY KEY TO CONTINUE"
6010 PAUSE 40000
6020 CLS
6030 RETURN
6999 REM FORM SELECTION
7000 CLS
7010 PRINT AT 6,7;"PRESS DESIRED FORM"
7020 PRINT AT 8,9;"1. FORM 1040"
7030 PRINT AT 9,9;"2. SCHEDULE A"
7082 PAUSE 40000
7084 LET K$=INKEY$
7086 IF K$<"1" OR K$>"2" THEN GOTO 7000
7088 CLS
7090 GOSUB VAL K$*100+7000
7092 RETURN
7099 REM FORM 1040
7100 PRINT AT 0,11;"FORM 10"
7102 LET Z=0
7104 LET P=4
7106 LET J(1)=7
7108 LET J(2)=21
7110 LET J(3)=37
7112 LET J(4)=47
7114 LET K(1)=21
7116 LET K(2)=37
7118 LET K(3)=54
7120 LET K(4)=66
7199 RETURN
7200 PRINT AT 0,11;"SCHEDULE A"
7202 LET Z=66
7204 LET P=2
7206 LET J(1)=1
7208 LET J(2)=21
7210 LET K(1)=20
7212 LET K(2)=41
7214 RETURN
8999 REM CONTINUATION
9000 REM LET J=1
9002 REM DIM J(4)
9004 REM DIM K(4)
9006 REM DIM C$(107)
9008 REM DIM L(107)
9010 REM DIM I$(3)
9012 REM FAST
9020 FOR I=J TO 107
9025 LET I$=STR$ I
9030 PRINT AT 21,0;I$;"*****"
*****
9040 INPUT C$(I)
9050 NEXT I
SYNTACTIC SUM: 52866, 8K

```

VIDEO ARTIST--8K/2K

This program shows the ZX81's ability to draw pictures under BASIC control. Run the program and enter the title of your work. Hit NEWLINE or ENTER, and you get a flashing cursor in the center of the screen. This is the editing cursor. Control the direction of this cursor in real-time with keys 5-8. The cursor moves in the direction of the arrows on the keys. In this mode you can move anywhere on the screen.

To start drawing, press 1. This puts the computer in plot mode. Again, you have real-time directional control by pressing keys 5-8. To erase, go back to edit mode (hit 0) and move the cursor over the line to erase.

When you finish a masterpiece, you can save it on tape. Turn on your recorder and press S. It saves under the title you gave it.

You can exit just about any time by pressing BREAK. This program should run in 2K RAM for those of you who have modified your ZX81's or added a 16K RAM pack.

Lance Ward, Lansing, MI

```

5 LET X=32
10 LET Y=20
15 PRINT "ENTER TITLE."
20 INPUT A$
25 CLS
30 PLOT X,Y
40 UNPLOT X,Y
50 IF INKEY$="5" THEN LET X=X+1
60 IF INKEY$="6" THEN LET Y=Y+1
70 IF INKEY$="7" THEN LET Y=Y+1
80 IF INKEY$="8" THEN LET X=X+1
90 IF INKEY$="1" THEN GOTO 100
95 GOTO 30
100 PLOT X,Y
110 IF INKEY$="5" THEN LET X=X+1
120 IF INKEY$="6" THEN LET Y=Y+1
130 IF INKEY$="7" THEN LET Y=Y+1
140 IF INKEY$="8" THEN LET X=X+1
150 IF INKEY$="0" THEN GOTO 30
160 IF INKEY$="S" THEN SAVE A$
170 GOTO 100
SYNTACTIC SUM: 23487, 8K

```



```

1 REM *****
2 REM #BILLY'S SLOT MACHINE#
3 REM *****
4 INK 1
5 LET P=0
6 PAPER 4
7 BORDER 6
8 CLS
9 LET S=500
10 GO SUB 1000
11 PRINT AT 1,28:
12 PAUSE 150
13 LET A$="CHERRYLEMON PLUM ORANGE BELL -BAR-CHERRY"
14 PAPER 6
15 GO TO 21
16 FOR J=1 TO 22
17 PRINT AT 7,20: " "
18 PRINT AT 10,11: " "
19 PRINT AT 11,11: " "
20 PRINT AT 12,11: " "
21 PRINT AT 20,11: "3 BAR OR BELL=JACKPOT"
22 NEXT J
23 DIM B$(3,6)
24 FOR J=1 TO 3
25 LET B$(J)=A$(1+6*INT(RND*7) TO 42)
26 IF B$(J)="CHERRY" THEN PAPER 2
27 IF B$(J)="LEMON" THEN PAPER 4
28 IF B$(J)="PLUM" THEN PAPER 3
29 IF B$(J)="ORANGE" THEN PAPER 2: INK 6
30 IF B$(J)="BELL" THEN PAPER 0: INK 6
31 IF B$(J)="-BAR-" THEN PAPER 7: INK 0
32 PRINT AT 11,7*J-5:B$(J)
33 BEEP .05,15
34 PAPER 6: INK 1
35 NEXT J
36 PLOT 214,49
37 DRAW 0,55: DRAW 2,0: DRAW 0,23: DRAW -8,0: DRAW 0,-23: DRAW 2,0: DRAW 0,-55
38 GO SUB 2000
39 PRINT AT 7,21: "DEPOSIT 2 BITS-->"
40 PRINT AT 7,21: "FLASH 1!"
41 IF INKEY$="d" OR INKEY$="D" THEN PRINT AT 7,21: " ": PR
42 AT 7,20: "25c": GO TO 85
43 GO TO 83
44 PRINT AT 6,28: "PULL": PRINT AT 7,27: "<----"
45 PRINT AT 7,26: "FLASH 1!"
46 LET S=S-25: PRINT AT 1,28: S
47 IF INKEY$="p" OR INKEY$="P" THEN GO TO 91
48 GO TO 89
49 PRINT AT 5,26: "I AT 6,26: " "I AT 7,26: " "I AT 8,26: " "I AT 9,
26: "I AT 10,26: " "I AT 11,26: " "I AT 12,26: " "I AT 13,26: " "I AT 14,26: " "
50 GO TO 20
1000 PRINT
1001 PLOT 0,4
1002 DRAW 192,0
1003 DRAW 0,148
1004 DRAW -192,0
1005 DRAW 0,-148
1006 PLOT 192,24
1007 DRAW 8,0
1008 DRAW 0,40
1009 DRAW -8,0
1010 PLOT 200,40
1011 DRAW 12,0
1012 PLOT 200,48
1013 DRAW 12,0
1014 CIRCLE 212,44,5
1015 PLOT 210,49
1016 DRAW 0,55
1017 PLOT 214,49
1018 DRAW 0,55
1019 DRAW 2,0
1020 DRAW 0,23
1021 DRAW -8,0
1022 DRAW 0,-23
1023 CIRCLE 172,116,14
1024 PLOT 6,70
1025 DRAW 180,0
1026 DRAW 0,28
1027 DRAW -180,0
1028 DRAW 0,-28
1029 PRINT AT 4,51: "BILLY'S SLOT"
1030 PRINT AT 5,71: "MACHINE"
1031 PRINT AT 14,41: "2 CHERRY PAYS 2"
1032 PRINT AT 15,41: "3 CHERRY PAYS 5"
1033 PRINT AT 16,41: "2 PLUM PAYS 5"
1034 PRINT AT 17,41: "3 PLUM PAYS 10"
1035 PRINT AT 18,41: "2 ORANGE PAYS 5"
1036 PRINT AT 19,41: "3 ORANGE PAYS 10"
1037 PRINT AT 1,151: "YOU NOW HAVE"
1040 RETURN

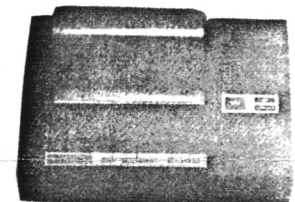
```

2068 PROGRAM

SLOT MACHINE

by Bill Gunter

REAL LAS VEGAS STYLE CASINO ENTERTAINMENT!
The program is a slot machine which plays 25 cent pieces, and keeps track of your winnings and losses (it even plays a little fanfare if you hit the jackpot). The odds ought to be pretty close to Nevada odds, and should keep the children quiet for hours. It is important to get the spacing just right in line 15, since the "fruit" which appear in the slot machine windows are "slices" of the character string "A\$". (EDITOR'S NOTE: this listing was made with a printer that doesn't use "0" for zero. So be careful when entering numbers in this program.)



```

2010 IF B$(1)=B$(2) AND B$(1)="CHERRY" THEN LET P=50: PRINT AT 1,1: FLASH 1:"YOU WIN "P
2011 IF B$(1)=B$(2) AND B$(1)=B$(3) AND B$(1)="CHERRY" THEN LET P=125: PRINT AT 1,1: FLASH 1:"YOU WIN "P
2012 IF B$(1)=B$(2) AND B$(1)="PLUM" THEN LET F=125: PRINT AT 1,1: FLASH 1:"YOU WIN "P
2013 IF B$(1)=B$(2) AND B$(1)=B$(3) AND B$(1)="PLUM" THEN LET P=250: PRINT AT 1,1: FLASH 1:"YOU WIN "P
2014 IF B$(1)=B$(2) AND B$(1)="ORANGE" THEN LET P=125: PRINT AT 1,1: FLASH 1:"YOU WIN "P
2015 IF B$(1)=B$(2) AND B$(1)=B$(3) AND B$(1)="ORANGE" THEN LET F=250: PRINT AT 1,1: FLASH 1:"YOU WIN "P
2016 IF B$(1)=B$(2) AND B$(1)="LEMON" THEN PRINT AT 1,1: FLASH 1:"SORRY, NO WIN": PAUSE 100
2017 IF B$(1)=B$(2) AND B$(1)=B$(3) AND B$(1)="-BAR-" THEN PRINT AT 1,1: FLASH 1:"JACKPOT - $10": LET P=1000: GO SUB 4000
2018 IF B$(1)=B$(2) AND B$(1)=B$(3) AND B$(1)="BELL" THEN PRINT AT 1,1: FLASH 1:"JACKPOT - $10": LET P=1000: GO SUB 4000
2019 LET S=S+P
2020 PRINT AT 1,28: " "
2021 PRINT AT 1,28: S
2022 LET P=0
2023 IF S=0 THEN GO TO 3000
2040 PAUSE 75
2050 PRINT AT 1,1: " "
2060 RETURN
3000 PRINT AT 1,01: "YOU ARE BUSTED-FOR REPLAY HIT "I FLASH 1:"R"
3010 IF INKEY$="R" THEN RUN
3020 GO TO 3010
4000 BEEP .2,-3: BEEP .2,2: BEEP .2,6: BEEP .4,9: BEEP .2,6: BEEP .8,9
4010 RETURN

```

2068 TIC TAC TOE

by Paul T. Erickson

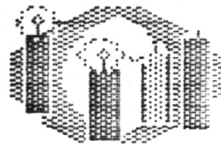
To play TIC TAC TOE:

Enter the number of the square when you see the cursor at the bottom. Each square has a number from 1 to 9. The first row is numbered 1, 2 and 3. The second row is numbered 4, 5 and 6. The last row is numbered 7, 8 and 9.

```

10 REM Tic tac toe
13 GO SUB 1000
15 LET w=0: LET z=0: LET o=0:
LET y=0: LET t=0: DIM d(3): LET
k=1000
20 LET a$="X"
35 LET o=0: LET b$="Y": PRINT
AT 6,12;a$(1);AT 6,16;a$(2);AT 6
,20;a$(3)
40 PRINT AT 9,12;a$(4);AT 9,16
;a$(5);AT 9,20;a$(6)
50 PRINT AT 12,12;a$(7);AT 12,
16;a$(8);AT 12,20;a$(9)
51 FOR x=1 TO 9: IF a$(x)<>" "
AND w=0 THEN NEXT x: PRINT "Dra
w": STOP
55 IF w=1 THEN PRINT "I win":
STOP
57 IF z=1 THEN LET z=0: GO TO
82
60 INPUT a
70 IF a<1 OR a>9 THEN GO TO 60
80 IF a$(a)<>" " THEN GO TO 60
81 LET a$(a)="O": IF z=0 THEN
LET z=1: GO TO 35
85 IF t=1 AND a$(3)=" " THEN L
ET a$(3)="X": LET w=1: GO TO 30
86 IF a$(2)="O" AND a$(5)="O"
AND a$(8)="O" THEN PRINT "You wi
n": STOP
87 FOR g=1 TO 20: IF g=10 THEN
LET b$="O": LET k=1000
88 LET k=k+10: GO SUB k-10
90 FOR x=1 TO 3: IF a$(d(x))=b
$ THEN LET o=o+1: NEXT x
95 IF x>3 THEN GO TO 105
100 LET s=d(x): NEXT x
110 IF o=2 AND b$="X" AND a$(s)
=" " THEN LET w=1: LET a$(s)="X"
: GO TO 30
115 IF b$="O" AND o=2 AND a$(s)
=" " THEN LET a$(s)="X": GO TO 3
0
120 LET o=0: NEXT g
130 IF a$(7)=" " THEN LET a$(7)
="X": GO TO 30
132 IF a$(9)=" " THEN LET a$(9)
="X": GO TO 30
135 IF a$(3)=" " THEN LET a$(3)
="X": GO TO 30
140 LET h=INT (RND*9)+1: IF a$(
h)<>" " THEN LET a$(h)="X": GO T
O 30
150 GO TO 140
1000 LET d(1)=1: LET d(2)=2: LET
d(3)=3: RETURN
1010 LET d(1)=4: LET d(2)=5: LET
d(3)=6: RETURN
1020 LET d(1)=7: LET d(2)=8: LET
d(3)=9: RETURN
1030 LET d(1)=1: LET d(2)=4: LET
d(3)=7: RETURN
1040 LET d(1)=2: LET d(2)=5: LET
d(3)=8: RETURN
1050 LET d(1)=3: LET d(2)=6: LET
d(3)=9: RETURN
1060 LET d(1)=3: LET d(2)=5: LET
d(3)=7: RETURN
1070 LET d(1)=1: LET d(2)=5: LET
d(3)=9: RETURN
1075 LET d(1)=1: LET d(2)=5: LET
d(3)=9: RETURN
1076 LET d(1)=3: LET d(2)=5: LET
d(3)=7: RETURN
1080 LET k=1000: NEXT g: GO TO 1
25
1090 PRINT AT 2,11;"Tic tac toe"
1100 PLOT 87,11: DRAW 88,0
1110 PLOT 87,87: DRAW 88,0
1120 PLOT 116,64: DRAW 0,71
1125 PLOT 148,64: DRAW 0,71
1126 PRINT AT 16,8;"PAUL T. ERIC
KSON"
1130 RETURN

```



PIE CHART For the TS 2068

By Bill Gunter

```

5 DIM n(15)
6 GO SUB 200
7 BORDER 6: PAPER 6: INK 0: C
Ls
10 LET x=180: LET y=87: LET z=
50
15 FOR i=3 TO 18: PAPER 1: PRI
NT AT i,14;" " : NE
XT i
17 INK 7
20 CIRCLE x,y,z
30 PLOT x,y: DRAW z,0
35 PAPER 6: INK 0
40 PRINT AT 0,0;"enter number
of items"
50 INPUT t
60 PRINT AT 0,0;"enter value e
ach item-"
65 LET s=0
70 FOR i=1 TO t
80 INPUT n(i)
82 PRINT AT 0,24;n(i);" "
85 LET s=s+n(i)
90 NEXT i
92 PRINT AT 0,0;" BILLY"
S PIE CHART
95 LET j=0
100 FOR i=1 TO t
110 LET d=s/(n(i)+j)
115 LET j=j+n(i)
120 LET d=(2*PI)/d
130 LET a=COS d*z: LET b=SIN d*
z
135 INK 7
140 PLOT x,y: DRAW a,b
145 INK 0
150 PRINT AT i+3,0;i
151 PRINT AT i+3,3;n(i)
152 PRINT AT 2,0;"# value %
"
153 PRINT AT i+3,11;INT ((n(i)/
s)*100)
160 NEXT i
165 PRINT AT 21,5;"TO CONTINUE
PRESS "C"
170 IF INKEY$="C" THEN GO TO 7
180 GO TO 170
200 BORDER 1: PAPER 1: INK 7
205 CLS
210 PRINT AT 10,11;"PIE CHART"
220 PRINT AT 11,14;"by"
230 PRINT AT 12,12;"BILLY"
240 PRINT AT 21,25;"7/18/84"
250 PAUSE 100: CLS: RETURN

```

HOUSE PAYMENTS

Bill Gunter

```

5 LET Z=0
6 BORDER 1: PAPER 6: INK 0
9 CLS
10 PRINT "AMOUNT? ";
20 INPUT A
30 PRINT A
40 PRINT "YEARS? ";
50 INPUT Y
60 PRINT Y
70 PRINT "INTEREST? ";
80 INPUT I
90 PRINT I
100 PRINT "PERIODS? ";
110 INPUT PER
120 PRINT PER
130 LET I=I/PER/100
140 LET N=PER*Y
150 LET P=A*I*(1+I)^N/((1+I)^N-1)
160 PRINT "MONTHLY PAYMENT="; INT (100*P+.5)/100
165 LET T= INT (100*P+.5)/100
170 PRINT
175 PRINT "TOTAL COST OF LOAN=";T*Y*PER
180 LET Z=Z+1
195 PRINT
200 PRINT "*****"
205 IF Z=2 THEN GO TO 230
210 PRINT
220 GO TO 10
230 PRINT AT 20,5;"PRESS "; FLASH 1; "C"; FLASH 0;" TO CONTINUE"
240 IF INKEY$="C" OR INKEY$="-C" THEN GO TO 5
250 GO TO 240.

```

This is a program which will compare the costs of home loans. If the user enters them AMOUNT of the loan, the number of YEARS for the loan, the INTEREST rate on the loan and the number of pay PERIODS per year (usually 12), the computer will furnish the monthly payment and the total cost of the loan over the entire period of the loan. Two such calculations can be displayed on one screen which makes it easy to compare loans in terms of varying time periods, ect. Users should know that the "A" symbol in line 150 is the symbol shifted "H" on the keyboard.